

## ABSTRACT

5           Acyclic diene metathesis (ADMET) has been utilized in the synthesis of carbosilane and carbosiloxane polymers bearing a latent reactive methoxy-functional group on each repeat unit. The polymerization results in a linear thermoplastic polymer. The latent reactive methoxy groups remain inert during polymerization; however, exposure to moisture triggers hydrolysis and the formation of a chemically cross-linked thermoset. The thermoset's properties can be modified by  
10       varying the ratio of carbosilane and carbosiloxane repeat units in the final material. Also, increasing cross-link density by using cross-linkable chain-end groups and increasing the run length of the soft phase, maximizing phase separation and elasticity, allows for the synthesis of elastic thermosets exhibiting good tensile strength. Adding a trifunctional ADMET active chain-end cross-linker to the system improved the mechanical behavior of the resulting polymer.